

Remarks:

Reconsideration of the application is requested.

Claims 1-33 remain in the application. Claims 1, 12, and 15 have been amended.

In the first paragraph on page 2 of the above-identified Office action, the drawings have been objected to under 37 CFR 1.83(a).

More specifically, the Examiner has stated that the "at least one heat exchanger is a tube having two walls..." in claim 29 and the "at least one heat exchanger is a ribbed tube section..." in claim 30 must be shown or the features cancelled from the claims. Figure 3 has been added to show the feature(s) of claim 29 and the specification has been amended to include a description of Fig. 3. Support for the description can be found on page 13, line 15 to page 14, line 5. No new matter has been added. Claim 30 has been cancelled so as to facilitate prosecution of the application. Therefore, the objection to the drawings by the Examiner has been overcome.

In the first paragraph on page 3 of the Office action, claims 1, 5, 8, 12, and 14-17 have been rejected as being fully

anticipated by Hansel (U.S. Patent No. 5,524,432) under 35 U.S.C. § 102.

The rejection has been noted and the claims have been amended in an effort to even more clearly define the invention of the instant application. The claims are patentable for the reasons set forth below. Support for the changes is found on page 3, lines 13-17 of the specification, where it is disclosed that an NOx accumulator stores NOx emissions intermediately. No new matter has been added.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1, 12, and 15 call for, *inter alia*:

storing the NOx emissions intermediately in the NOx accumulator.

The Examiner stated on page 3 of the Office action, that Hansel discloses a method for regulating the temperature range of an NOx accumulator (105) for purifying an internal combustion engine (101) exhaust gas stream.

Applicants respectfully disagree with the Examiner's comments because of the following reasons. The Hansel reference

discloses an NOx/CO catalyst, not an NOx accumulator. This can be seen from column 3, lines 30-32 where Hansel discloses that "the invention is a method for controlling the reduction of nitrogen oxides". Hansel also discloses on column 3, lines 32-38 that "the method comprises selecting a catalyst capable of reducing nitrogen oxides...". Moreover, in column 3, lines 46-51, Hansel discloses that "...are determined to achieve the required degree of nitrogen oxides reduction". Even in the passage cited by the Examiner it is stated that the system with reference numeral (105) is a nitrogen oxide/CO catalyst system (column 10, lines 1-4). Hansel further discloses that in the system 105 nitrogen oxides and CO react with the oxygen and methane (column 10, lines 10-15). The temperature control disclosed in Hansel is required to achieve the required removal of nitrogen oxides (column 10, lines 1-4). Furthermore, there are many more references throughout Hansel, which indicate that reference symbol (105) pertains to a NOx catalyst and not to an NOx accumulator.

The reference does not show storing the NOx emissions intermediately in the NOx accumulator, as recited in claims 1, 12, and 15 of the instant application. The Hansel reference discloses a NOx catalyst. This is contrary to the invention of the instant application as claimed, in which an NOx accumulator is provided.

Since claims 1, 12 and 15 are believed to be allowable over Hansel, dependent claims 5, 8, 14, and 16-17 are believed to be allowable as well.

In the fourth paragraph on page 4 of the Office action, claims 15, 26, and 28-32 have been rejected as being fully anticipated by Sung et al. (U.S. Patent No. 5,685,145) (hereinafter "Sung") under 35 U.S.C. § 102.

The Examiner stated on page 4 of the Office action, that Sung discloses an NOx accumulator (30) disposed in the exhaust stream.

Applicants respectfully disagree with the Examiner due to the following reasons. Sung discloses that the reference numeral 30 is a catalyst zone. This catalyst zone is described as "a catalytic material effective at least for conversion of hydrocarbons to innocuous substances" (column 2, lines 45-49). Similar statements can be found in column 5, lines 9-13; column 6, lines 12-17; column 6, lines 47-51; and column 9, lines 31-34. The catalyst zone disclosed by Sung converts hydrocarbons and is therefore, a conventional catalyst widely used for the purification of automotive gases.

The reference does not show storing the NOx emissions intermediately in the NOx accumulator, as recited in claim 15

of the instant application. The Sung reference discloses a catalyst zone. This is contrary to the invention of the instant application as claimed, in which an NOx accumulator is provided.

In the sixth paragraph on page 5 of the Office action, claims 6, 9-11, 13, and 27 have been rejected as being obvious over any one of Hansel (U.S. Patent No. 5,524,432) and Sung (U.S. Patent No. 5,685,145) in view of design choice under 35 U.S.C. § 103. Design choice does not make up for the deficiencies of Hansel or Sung. Since claims 1, 12, and 15 are believed to be allowable, dependent claims 6, 9-11, 13, and 27 are believed to be allowable as well.

It is appreciatively noted from page 7 of the Office action, that the Examiner has indicated that claims 2-4, 18-25 and 33 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Since claims 1, 12, and 15 are believed to be allowable in their current form, the claims have not been amended as indicated by the Examiner.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 12, or 15. Claims 1, 12, and 15 are, therefore, believed to be patentable over

the art and since all of the dependent claims are ultimately dependent on claims 1, 12, or 15, they are believed to be patentable as well.


In view of the foregoing, reconsideration and allowance of claims 1-29 and 31-33 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner & Greenberg P.A., No. 12-1099.

Respectfully submitted,

  
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For Applicant(s)

**Alfred K. Dassler**  
**52,794**

AKD:cgm

July 23, 2003  
Lerner and Greenberg, P.A.  
Post Office Box 2480  
Hollywood, FL 33022-2480  
Tel: (954) 925-1100  
Fax: (954) 925-1101